

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant : Michael A. SIRACKI Art Unit : 3672  
Serial No.: 10/634,629 Examiner : Thompson, K.L.  
Filed : August 5, 2003 Confirmation No.: 7203  
Title : PREFORMED TOOTH FOR TOOTH BIT

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**DECLARATION OF JAMES CARL MINIKUS UNDER 37 CFR § 1.132**

I, JAMES CARL MINIKUS hereby declare that:

1. My name is James Carl Minikus. I am over the age of eighteen years, of sound mind and competent to make this declaration. The facts stated herein are of my personal knowledge, and I know them to be true and correct.

2. I received a Bachelor of Science degree in Mechanical Engineering from California State University, Fullerton in May of 1992.

3. I have worked for Smith International for 23 years in various drafting, design, engineering and management roles, all involving Smith's roller cone drill bits. I have drafted numerous roller cone bit drawings, designed numerous roller cone bits, and now manage the roller cone drill bit engineering department.

4. At this time, I am an employee of Smith International, Inc. My present title is Director of Roller Cone Bit Engineering.

5. As Director of Roller Cone Bit Engineering, my responsibilities include (among other duties) managing the design, engineering, drawing preparation and document control for roller cone drill bits. I also support the manufacture and sale efforts by Smith of its roller cone bits.

6. I am familiar with the above referenced patent application, and have reviewed the Examiner's rejections.

7. I am currently employed by Smith International, Inc.

8. As I understand, U.S. Patent No. 6,450,271 ("Tibbitts"), a primary teaching of Tibbitts, with respect to drill bits, is to provide a coating for bit surfaces exhibiting a relatively low adhesion, preferably nonwater-wettable, surface over at least a portion thereof. A surface treatment may comprise a treatment directly on a surface of a drill bit component but also a surface treatment on a surface of a preformed insert. Tibbitts involves cutting elements as known in the art: integrally formed mill tooth bits and preformed inserts.

9. As I understand U.S Patent No. 6,206,115 ("Overstreet"), a primary teaching of Overstreet, with respect to drill bits, is to provide a cutter that includes a plurality of teeth. The teeth include an underlying steel stub that is integrally formed with the cutter, a carburized layer and a hardfacing layer thereupon.

10. Generally speaking, roller cone milled tooth bits and roller cone tungsten carbide insert bits have each developed to improve wear resistance. The wear resistance of the tungsten carbide bits significantly out-performed milled tooth bits. Hardfacing materials and welding improvements improved the milled tooth performance, but not to the level of performance of tungsten carbide inserts. When one of ordinary skill in the art designs or manufactures a drill bit, he or she typically selects either insert-type cutting elements or milled tooth cutting elements, depending on the drilling application. The two types of bits are not viewed as being generally interchangeable.

11. It is known in the art that welding the hardfacing on a milled cone is difficult both in the aspect of welding and in control, resulting in non-uniform hardfacing thicknesses. Generally speaking, to gain increase wear resistance, higher percentages of tungsten carbide are used in the steel matrix of the hardfacing of the material. However, the difficulty in welding the hardfacing on a milled cone typically results in thermally damaged tungsten carbide

particles which results in lower wear resistance. Thus, the amount of tungsten carbide in hardfacing is limited when welding the hardfacing on a milled cone.

12. As a person of at least ordinary skill in the art, I believe that neither Tibbitts nor Overstreet, alone or in combination show or suggest a method of forming a tooth rock bit that includes attaching a cutting element being predominantly steel to the surface of a cone and depositing a hardfacing layer prior to attaching the cutting element, as recited in the present claims.

13. Both Tibbitts and Overstreet are silent with respect to altering the material of a preformed cutting element, using steel teeth that are not integrally formed with a cutter, and depositing a hardfacing layer on a predominantly steel cutting element when it is unattached to a drill bit. The benefits and control of forming a pre-formed steel tooth bit that is deposited with a hardfacing layer prior to being attached to a drill bit are not taught in either Tibbitts or Overstreet, nor are they apparent to one of ordinary skill in the art.

I further declare that all statements made herein of my own knowledge are true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Respectfully submitted,

Respectfully submitted,  
  
Date: 17 DEC 04

Date: 2023-01-01

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